UNITED STATES PATENT AND TRADEMARK OFFICE

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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _16 July 2008_.
2a) ☐ This action is **FINAL**.　　2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-12_ is/are pending in the application.
　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) _1-12_ is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a) ☐ All　b) ☐ Some * c) ☐ None of:
　　　1. ☐ Certified copies of the priority documents have been received.
　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

716/2007 has been entered.

2.   This application was filed on **12-31-2003**. Claims **1 - 12** are pending. Claims **1,**

2, 5, 10 have been amended. Claims **1, 2** are independent.

Response to Arguments

3   Applicant's arguments filed 7/16/2008 have been fully considered but they are not

persuasive.

Applicant argues that the referenced prior art does not disclose the following

amended claim limitations: traffic policer, MAC buffer, VLAN push module, a first rate

buffer, an ingress bus transmitter, an egress bus receiver, a second rate buffer, and a

VLAN pop module, a classifier, a forwarding processor, and an egress processor. (see

Remarks Pages 5,6)

The amended claim limitations have been disclosed within the current set of prior

art references.

Denney discloses the MAC preprocessor and MAC postprocessor. (Denney para 052, ll 1-4: MAC preprocessor, postprocessor) And, Crinion discloses a MAC buffer (Crinion col 5, ll 42-47: packet buffer (MAC buffer)), a VLAN push module (Crinion col 6, ll 59-64: queue management; push: placement of frame onto queue; removal of frame from queue), and a VLAN pop module (Crinion col 6, ll 59-64: queue management). And, Hussain discloses a traffic policer (Hussain col 4, ll 42-43: ; col 7, ll 36-39: ingress policing), a first rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to which packet belongs (packet flow, packet buffering)), an ingress bus transmitter (Hussain col 8, ll 31-33; col 8, ll 38-41: ingress processor (transmitter)) And, Hussain discloses an egress bus receiver (Hussain col 8, ll 31-33; col 8, ll 38-41: egress processor (receiver)), and a second rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to which packet belongs (packet flow, packet buffering))

In addition, Hussain discloses wherein a classifier, a forwarding processor and an egress processor. (Hussain col 8, ll 56-62; col 7, ll 62-64: classifier; col 6, ll 33-36: processor to provide IP packet forwarding (forwarding processor); col 8, ll 31-33; col 8, ll 38-41: egress unit composed of an array of packet processors; egress processor).

Claim Rejections - 35 USC § 103

The text of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4.   Claims **1 - 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Crinion et al. (US Patent No. **6,181,699**) in view of **Hussain et al.** (US Patent No.

7,161,904) and further in view of **Denney et al.** (US PGPUB No. **20030061623**).

Regarding Claim 1, Crinion discloses a data link layer processor comprising:

one or more media access controllers (MACs); (Crinion Figure 8; col 5, ll 66-67; col

6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet) access for data

frames, input and output)   In addition, Crinion discloses a MAC buffer (Crinion col 5,

ll 42-47: packet buffer (MAC buffer)), a VLAN push module and a VLAN pop module

(Crinion col 6, ll 59-64: queue management; push: placement of frame onto queue;

removal of frame from queue).   Crinion does not explicitly disclose that each MAC

includes a MAC **pre**processor and a MAC **post**processor.   And, Crinion does not

explicitly disclose a traffic policer; first rate buffer, and an ingress bus transmitter, an

ingress bus receiver, and a second rate buffer.

However, Denney discloses:

a) each of said one or more MACs includes a MAC preprocessor and a MAC

      postprocessor, (Denney para 052, ll 1-4: MAC preprocessor, postprocessor) and

And, Hussain discloses:

a traffic policer (Hussain col 4, ll 42-43: ; col 7, ll 36-39: ingress policing), a first

rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to

which packet belongs (packet flow, packet buffering)), an ingress bus transmitter

(Hussain col 8, ll 31-33; col 8, ll 38-41: ingress processor (transmitter)); an

egress bus receiver (Hussain col 8, ll 31-33; col 8, ll 38-41: egress processor

(receiver)), and a second rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate

control based on the flow to which packet belongs (packet flow, packet

buffering)).

Crinion does not explicitly disclose a traffic shifter for discarding one or more frames

that exceed a bandwidth requirement.

However, Hussain discloses:

b) a traffic shaper, operatively coupled to the one or more MACs, for discarding one

   or more frames that exceed a bandwidth requirement prior to transmission to the

   MACs. (Hussain col 9, ll 57-64; col 10, ll 14-16: discards frames that do not

   conform to bandwidth requirements, rate limit egress (output) flow: must drop

   packet prior to transmission to output queue or MACs)

   It would have been obvious to one of ordinary skill in the art to modify Crinion

where each MAC includes a MAC preprocessor and a MAC postprocessor as taught

by Denney, and to modify Crinion for a traffic policer; first rate buffer, and an ingress

bus transmitter, an ingress bus receiver, a second rate buffer and for discarding one

or more frames that exceed a bandwidth requirement prior to output as taught by

Hussain.   One of ordinary skill in the art would have been motivated to employ the

teachings of Denney in order to increase packet throughput capacity and sustain

performance (Denney para 017, ll 1-3: " ... *Therefore, a system and method that*

increase packet throughput capacity and sustain performance are needed to

address the above problems. ... "), and to employ the teachings of Hussain in order

to perform a fair allocation of bandwidth with network packet based metering within a

virtual network environment (Hussain col 1, ll 33-36: " ... *In the case of a multi-client*

network, for example, it may be desirable to meter and/or identify customers, or

certain groups of customers, that are oversubscribing (e.g., using more than their

allocated bandwidth). ... "; col 1, ll 43-49: " ... *Thus there is a general need for an*

improved system and method for performing metering in a virtual router based

network switch. There is also a general need for a system and method for

performing metering in a multi-client network that distinguishes between clients and

groups of clients. There is also a need for a system and method that supports a fair

sharing of communication resources. ... ").

Regarding Claim 2, Crinion discloses a switching device comprising:

   a) one or more physical layer interfaces for transmitting frames to a communication

       network; (Crinion Figure 8; col 8, ll 26-28; col 5, ll 66-67; col 6, l 66 - col 7, l 3;

       col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet) access for data frames,

       input/output)

   c) a plurality of data link layer processors (Crinion Figure 8; col 5, ll 26-28; col 8, ll

       17-19: data link layer (MAC) processor(s), 802.3 LAN users), wherein each data

       link layer processor comprises:

Crinion discloses wherein one or more media access controllers (MACs), wherein

each MAC is operatively coupled to a physical layer interface; (Crinion Figure 8; col

8, ll 26-28; col 5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC

(Ethernet, 802.3 LAN users) access for data frame)   Crinion does not explicitly

disclose that each MAC includes a MAC preprocessor and a MAC postprocessor.

However, Denney discloses:

d) each of said one or more MACs includes a MAC preprocessor and a MAC

postprocessor, (Denney para 052, ll 1-4: MAC preprocessor, postprocessor) and

Crinion discloses wherein a network processor for routing the frames towards the

one or more physical layer interfaces. (Crinion Figure 8; col 2, ll 46-54: process

(processor) network traffic; col 1, ll 7-10; col 5, ll 17-19: routing data frames) Crinion

does not explicitly a traffic shaper for discarding one or more frames from the

network processor that exceed one or more bandwidth parameters. In addition,

Crinion does not explicitly disclose a classifier, a forward processor and an egress

processor.

 However, Hussain discloses:

b) having a classifier, a forwarding processor and an egress processor. (Hussain

col 8, ll 56-62; col 7, ll 62-64: classifier, flow classification for packets using

header information (properties of packet); col 6, ll 33-36: include a virtual routing

processor to provide IP packet forwarding (forwarding processor); col 8, ll 31-33;

col 8, ll 38-41: egress unit composed of an array of packet processors; egress

processor may share common code)

e) a traffic shaper, operatively coupled to the one or more MACs, for discarding one

or more frames from the network processor that exceed one or more bandwidth

parameters prior to transmission to the MACs. (Hussain col 9, ll 57-64; col 10, ll

14-16: discards frames that do not conform to bandwidth requirements, rate limit

egress (output) flow: must drop packet prior to transmission to output queue or

MACs)

It would have been obvious to one of ordinary skill in the art to modify Crinion

where each MAC includes a MAC preprocessor and a MAC postprocessor as taught

by Denney, and to modify Crinion for a classifier, a forward processor, an egress

processor, and a traffic shaper discarding one or more frames from the network

processor that exceed one or more bandwidth parameters as taught by Hussain.

One of ordinary skill in the art would have been motivated to employ the teachings of

Denney in order to increase packet throughput capacity and sustain performance

(Denney para 017, ll 1-3), and to employ the teachings of Hussain in order to enable

the capability to perform a fair allocation of bandwidth with network packet based

metering within a virtual network environment (Hussain col 1, ll 33-36; col 1, ll 43-

49).

Regarding Claim 3, Crinion discloses the switching device of claim 2, wherein the

traffic shaper discards the one or more frames in accordance with a Three Color Marker

(TCM) algorithm. (Hussain col 7, ll 15-19; col 10, ll 1-3: Three Color Marker (TCM)

algorithm (RFC 2698) utilized to discard frames based on TCM requirements)

It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for a traffic shaper for discarding one or more frames from the

network processor that exceed one or more bandwidth parameters as taught by

Hussain. One of ordinary skill in the art would have been motivated to employ the

teachings of Hussain in order to enable the capability to perform a fair allocation of

bandwidth with network packet based metering within a virtual network environment.

(Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 4, Crinion discloses the switching device of claim 3, wherein the TCM

algorithm is selected from the group consisting of: single rate TCM, two rate TCM, and a

combination thereof. (Hussain col 7, ll 15-19; col 10, ll 1-3: TCM: two rate TCM

disclosed))

    It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for a traffic shaper for discarding one or more frames from the

network processor that exceed one or more bandwidth parameters as taught by

Hussain. One of ordinary skill in the art would have been motivated to employ the

teachings of Hussain in order to enable the capability to perform a fair allocation of

bandwidth with network packet based metering within a virtual network environment.

(Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 5, Crinion discloses the switching device of claim 2, wherein the

traffic shaper comprises:

    a) a meter module for determining a flow rate associated with the frames received

        from the network processor; (Hussain col 2, ll 32-36; col 2, ll 41-44: processor

        utilized to determine a packet flow rate (bandwidth)) and

b) a discard control logic for selectively discarding said one or more frames based

upon the flow rate and the one or more bandwidth parameters. (Hussain col 9, ll

57-61; col 10, ll 14-16: drop (discard) frames selectively (based on criteria))

It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for a traffic shaper for discarding one or more frames from the

network processor that exceed one or more bandwidth parameters as taught by

Hussain. One of ordinary skill in the art would have been motivated to employ the

teachings of Hussain in order to enable the capability to perform a fair allocation of

bandwidth with network packet based metering within a virtual network environment.

(Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 6, Crinion discloses the switching device of claim 5, wherein the

traffic shaper further comprises a marker module for marking the plurality of frames in

accordance with a TCM algorithm. (Hussain col 7, ll 15-19; col 10, ll 1-3: mark frames

based on TCM algorithm (discard, do not discard))

It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for a traffic shaper for discarding one or more frames from the

network processor that exceed one or more bandwidth parameters as taught by

Hussain. One of ordinary skill in the art would have been motivated to employ the

teachings of Hussain in order to enable the capability to perform a fair allocation of

bandwidth with network packet based metering within a virtual network environment.

(Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 7, Crinion discloses the switching device of claim 6, wherein the one

or more bandwidth parameters comprise a committed information rate (CIR) and an

excess burst size (EBS). (Hussain col 2, ll 64-67: committed information rate (CIR); col

10, ll 3-8: peak (excess) burst size: equivalent 2 burst sizes (committed, peak (excess))

It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for bandwidth parameters committed information rate (CIR) and

excess (peak) burst size (EBS) as taught by Hussain. One of ordinary skill in the art

would have been motivated to employ the teachings of Hussain in order to enable the

capability to perform a fair allocation of bandwidth with network packet based metering

within a virtual network environment. (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 8, Crinion discloses the switching device of claim 2, wherein the

traffic shaper comprises a flow search engine for classifying frames from the network

processor based upon one or more properties associated with the frames. (Hussain col

8, ll 56-62; col 7, ll 62-64: flow classification for packets using header information

(properties of packet))

It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for classifying frames based on frame properties as taught by

Hussain. One of ordinary skill in the art would have been motivated to employ the

teachings of Hussain in order to enable the capability to perform a fair allocation of

bandwidth with network packet based metering within a virtual network environment.

(Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 9, Crinion discloses the switching device of claim 8, wherein the flow

search engine comprises a content addressable memory (CAM). (Crinion col 1, ll 52-

54; col 2, ll 55-57; col 3, ll 3-4: CAM utilized in data frame processing)

Regarding Claim 10, Crinion discloses the switching device of claim 9, wherein the

CAM associated with each of the plurality of data link layer processors consists of QoS

rules pertaining to the associated plurality of physical layer interfaces. (Crinion col 1, ll

47-49; col 3, ll 26-27: set priority, determination of quality of service (QoS) for data

frame(s))

Regarding Claim 11, Crinion discloses the switching device of claim 2, wherein data

link layer processors are media access controller (MAC) processors. (Crinion col 8, ll

26-28; col 5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet,

802.3 LAN users) access for data frames)

Regarding Claim 12, Crinion discloses the switching device of claim 2, wherein the

switching device is selected from the group consisting of: a router, a multi-layer

switching device, and a switch blade. (Crinion col 2, ll 50-51; col 4, ll 45-48: switch

(switching device))

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KYUNG H. SHIN whose telephone number is (571) 272-3920. The examiner can normally be reached on 9:30 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia Dollinger can be reached on 571-272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

<div style="text-align: right;">

Kyung Hye Shin
Examiner
Art Unit 2143

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KHS
Aug. 13, 2008

/Tonia LM Dollinger/

Supervisory Patent Examiner, Art Unit 2143